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SAWFLIES DEFOLIATE WESTERN LARCH.

Evenden

Early in the summer of 1921 the foliage of the western larch (Larix occidentalis) in the vicinity of Coeur d'Alene, Idaho, began to turn brown as if the trees were dying. Upon examination it was found that the foliage was being severely attacked by the larvae of two species of sawflies. The sawflies belong to the same order as bees, wasps, etc. The common, or group, name is derived from the two saw like appendages carried on the last abdominal segment of the adult females, and used for cutting little pockets in the plant tissues in which to deposit their eggs. These larvae have been determined by Messrs Rohwer and Middleton, Specialists in the Bureau of Entomology, as belonging to the subfamily NEMATINAE. A further identification will be impossible until the adult insects are secured.

To the best of the writers knowledge this is the first record of damage to western larch by sawflies. In the eastern states the Eastern Larch Sawfly (Nematus erichsonii) has been recognized as an important enemy of the American Larch for many years.. In the Yearbook Department of Agriculture, 1907, " Notable Depredations by Forest Insects", Dr. A. D. Hopkins, Forest Entomologist, Bureau of Entomology, writes of the Eastern Larch Sawfly as follows; " The aggregate area

covered by these outbreaks appears to be that of the natural distribution of the American Larch east of Wisconsin, or about 600,000 square miles, in which a large percent of the so called mature larch has been killed."

The larvae of these two insects feed directly upon the needles, the nature of the attack apparently varying between mature trees and reproduction. On the mature trees about one-third of the needle is eaten off killing the remainder, while on the reproduction, or smaller trees, but small parts are eaten from the needle killing that portion from the point of injury to the tip. (See figure # 1.)

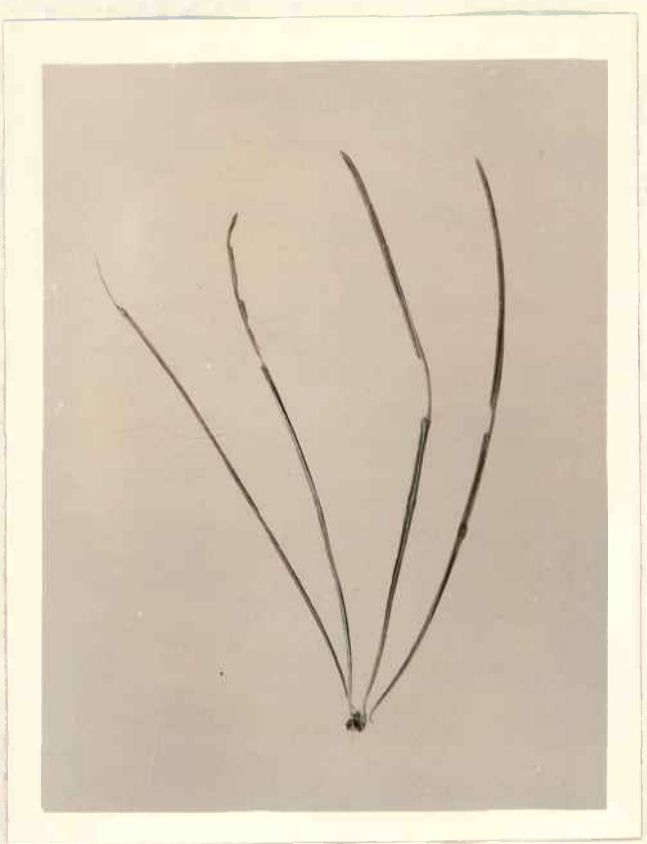
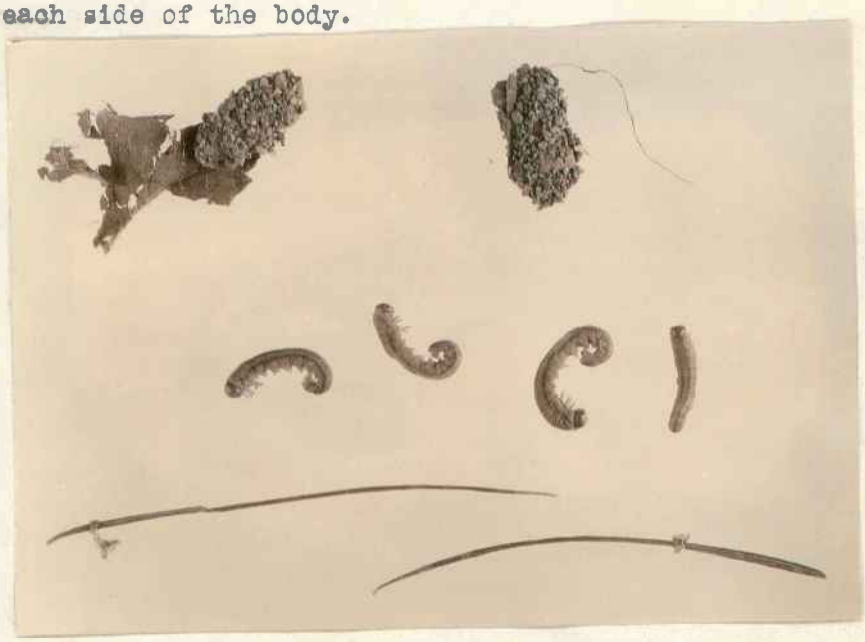


FIGURE # 1.

Injury to the needles of western larch reproduction by the larvae of sawflies. 2X Natural Size. Forest Insect Field Station, Coeur d'Alene, Idaho. 1921.

At the present time very little is known concerning the seasonal history of these defoliators. The larvae were found on the larch needles early in July where they remained until the first of September. At that time the larvae began leaving the trees, and constructing pupal cells in the ground, all having disapeared from the foliage by the 15 of September. Field records were checked by intensive laboratory studies at the Coeur d'Alene Field Station.

The larvae, pupal cases, and cast larval skins of the two species are shown in figures 2 and 3. The larvae of the larger species (Figure 2) are a bright green with four narrow stripes of white down the back, while the others are of a lighter green with a broad dark band on each side of the body.



FIGRUE #2. Larvae, pupal cases, and cast larval skins of the larger species of sawfly attacking western larch. 2X natural size. ########

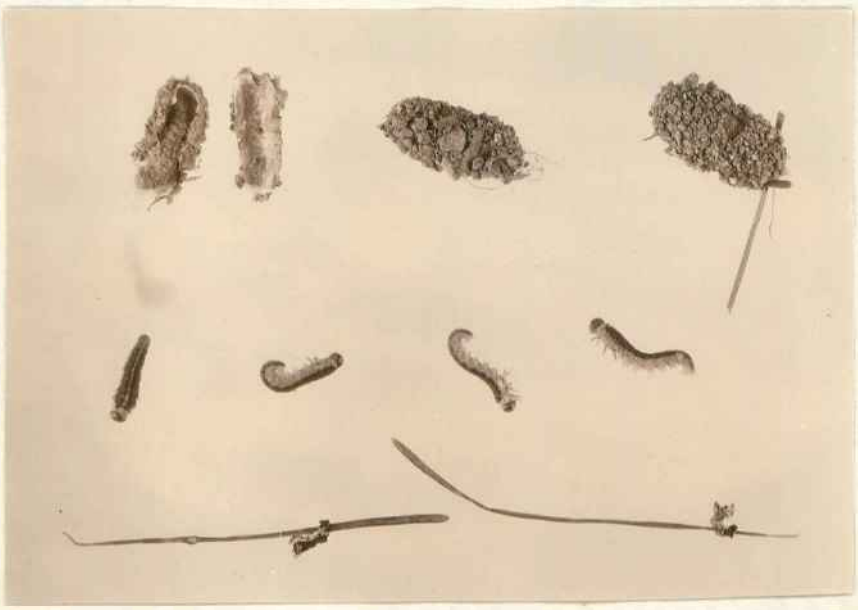


FIGURE # 3. Larvae, pupal cases, and cast larval skins of the smaller species of sawfly attacking the western larch. 2X Natural Size.

To determine if possible the extent of this infestation letters were written to all Forest Supervisors, of National Forests in Montana, Idaho, and eastern Oregon and Washington, requesting information as to the presence of the brown topped larch trees. From the data received through the answers to these letters it is evident that the insects are present through-out the larch stands of northern Idaho, and north-western Montana. In the Coeur d'Alene and St Joe National Forests, which were covered by the writer during the past field season, at least 75 percent of the total stand was attacked. Reports from the Supervisor of the Flathead National Forest indicate a similar condition through-out the area between Columbia Falls and Kalispell, Montana.

The future of this infestation is unknown. So far no damage has been done as the trees defoliated last season will recover unless the epidemic continues for a number of years. In the event of this happening a large percent of the larch stands will be killed as a result of continuous defoliation. It is hoped that these insects have natural enemies, or that there will be some natural influence which will check this epidemic, as the thoughts of control are prohibitive because of the expense involved. The continuance of past epidemics of the eastern larch sawfly, and other defoliating insects have been prevented by natural conditions, and it is upon these facts that the fate of the western larch is balanced.

During the past season intensive laboratory experiments with the two species were conducted at the Coeur d'Alene Station. This work will be continued for the purpose of determining the complete seasonal histories, and to investigate any possible means of artificial control with the idea that it could be utilized should this epidemic continue.

The writer is indebted to Mr. Rust, Entomological Ranger, for valuable assistance in studying this epidemic, on. and to the Forest Service for their splendid cooperation in determining the extent of the infestation

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